

Article

Green Entrepreneurship for Business Sustainability: Do Environmental Dynamism and Green Structural Capital Matter?

Khaled Tekala, Sarvnaz Baradarani, Ahmad Alzubi *  and Ayşen Berberoğlu 

Institute of Social Sciences, University of Mediterranean Karpasia, TRNC, Mersin 33000, Turkey; 210634350@std.akun.edu.tr (K.T.); sarvnaz.baradarani@akun.edu.tr (S.B.); aysen.berberoglu@akun.edu.tr (A.B.)

* Correspondence: ahmad.alzaubi@akun.edu.tr

Abstract: With the appearance of rising environmental challenges, businesses are increasingly recognizing the imperative of adopting sustainable practices. Within this context, the concept of green entrepreneurship has emerged as a pivotal force driving environmentally responsible innovation and economic growth. Employing Green Theory, this study examines the impact of green entrepreneurship (GEN) on business sustainability (BS) through the mediation role of green structural capital (GSC) and the moderation influence of environmental dynamism (ED). Using a quantitative research approach, 443 owners and managers of small and medium-sized enterprises (SMEs) (e.g., wholesale and retail trade, manufacturing, building materials, and scientific, professional, and technical activity enterprises) in Istanbul and Izmir, Turkey, were surveyed using both on site and electronic questionnaires. The data from the study were statistically analyzed using SPSS V.27 and structural equation modeling (SEM). The findings of this study show that green entrepreneurship (GEN) significantly enhances business sustainability (BS) and green structural capital (GSC), with GSC serving as a vital mediator in the GEN-BS relationship; however, environmental dynamism (ED) does negatively moderate the GEN-BS relationship, indicating that GEN's positive impact on BS is accentuated under lower environmental uncertainties. Additionally, ED's moderation effect is observed in the GEN-BS relationship via GSC, particularly under conditions of reduced dynamism, underscoring the nuanced role of environmental factors in sustainable entrepreneurship. The findings demonstrate green entrepreneurship and structural capital as key drivers for SME sustainability amidst environmental fluctuations.

Keywords: green entrepreneurship; green structural capital; environmental dynamism; business sustainability; Turkey SME



Citation: Tekala, K.; Baradarani, S.; Alzubi, A.; Berberoğlu, A. Green Entrepreneurship for Business Sustainability: Do Environmental Dynamism and Green Structural Capital Matter?. *Sustainability* **2024**, *16*, 5291. <https://doi.org/10.3390/su16135291>

Academic Editors: Peng Zhou and Bo Zhang

Received: 1 May 2024

Revised: 17 June 2024

Accepted: 18 June 2024

Published: 21 June 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

In recent years, the urgency for businesses to adopt sustainable practices has intensified due to escalating environmental concerns and increasing pressure from stakeholders for corporate responsibility. Small and medium-sized enterprises (SMEs) play a pivotal role in the global economy, particularly in developing countries like Turkey [1–3]; however, their contribution to environmental degradation cannot be overlooked. To address this, the concept of green entrepreneurship has emerged, emphasizing the integration of environmentally friendly practices into business operations. The development of green economies varies significantly across different regions, reflecting diverse economic, regulatory, and cultural contexts.

In Europe, stringent environmental regulations and strong public awareness have propelled countries like Germany and the Nordic nations to the forefront of green economic practices. These countries have witnessed substantial investments in renewable energy, sustainable technologies, and green infrastructure, leading to a significant reduction in carbon emissions and increased resource efficiency. Similarly, in North America, countries

such as the United States and Canada have seen robust growth in green industries, driven by innovation and supportive policy frameworks [4].

Turkey is positioned at the crossroads of Europe and Asia, and as so, Turkey presents a unique case in the global landscape of green business sustainability. The country has made significant strides in adopting green practices, with government initiatives promoting renewable energy and sustainable development. Despite these efforts, Turkish SMEs still face numerous challenges, including limited access to green financing, a lack of comprehensive regulatory support, and varying levels of environmental awareness among business leaders [5,6]. Against this backdrop, the imperative for sustainable practices among Turkish SMEs has never been more pressing.

Environmental degradation, resource scarcity, and climate change pose significant risks to both the natural environment and the long-term viability of businesses. Addressing these challenges requires innovative solutions that not only mitigate environmental impacts but also enhance competitiveness and resilience [7]. Understanding the dynamics of green entrepreneurship within this context is crucial for fostering environmentally responsible business practices and ensuring long-term competitiveness in the global market [8,9].

To effectively examine the relationship between green entrepreneurship, green structural capital, and business sustainability in Turkish SMEs, it is essential to establish a clear understanding of key concepts at the outset [10]. Green entrepreneurship (GEN) represents a paradigm shift in business practices where entrepreneurs integrate environmental considerations into their ventures, aiming to create value not only for shareholders but also for society and the environment [11]. GEN involves the development and implementation of innovative business models, products, and processes that minimize environmental impacts while generating economic returns. GSC encompasses the intangible assets within organizations that support and enable green entrepreneurship initiatives. These assets include knowledge, skills, networks, and organizational structures specifically geared toward promoting sustainability [12]. Green structural capital (GSC) plays a crucial role in facilitating the adoption and implementation of green practices, thus enhancing the overall sustainability performance of SMEs [13]. Business sustainability (BS) refers to the ability of SMEs to achieve long-term profitability and competitiveness while simultaneously addressing environmental and social concerns [14]. Sustainable businesses operate in harmony with their environment, ensuring an efficient use of resources, a reduction in waste and pollution, and a promotion of social equity and responsibility [15].

This study is guided by the theoretical framework of Green Theory, which was established in 1972 in response to growing concerns about the stability of nature's balance [16]. While globally focused, the discourse on the integration of economy and environment has long held a global dimension, predating the emergence of Green Theory, which aligned with the concerns of the burgeoning social movement and green parties. The idea is that environmental preservation and economic progress exist in a straightforward zero-sum correlation. It emphasized the possibility of separating economic expansion from environmental harm by actively promoting eco-friendly and sustainable development approaches. The concept of sustainable growth, expressively articulated by the Brundtland Commission, centers on meeting their necessities [17]. Applying Green Theory reveals three main factors that have led to the intensification of environmental actions, especially toward the end of the 20th century. Firstly, the environmental movement's expansion has been driven by scientific studies and environmentalists aiming to protect the environment. Secondly, there has been a growing appreciation for environmental values in countries beyond Europe and America. Lastly, a shift in perspective toward environmental issues has led to a broader conceptualization of the environment [18].

Environmental dynamism (ED) refers to a dynamic and uncertain state within the external business environment. In this context, fluctuating client demands and commodity requirements play pivotal roles, introducing unpredictability and instability. Organizations navigating ED must adapt swiftly to these challenges, seeking equilibrium between flexibility and performance. The interplay of uncertainty, dynamics, and complexity in the

external economic landscape impacts an enterprise's organizational flexibility and overall performance [19–21]. Additionally, ED can introduce challenges related to technological capacities and competitive landscapes, where advantages may be transient [22–24].

Despite growing interest in green entrepreneurship and business sustainability, there remains a notable research gap in understanding the specific relationship between these concepts, particularly within the context of Turkish SMEs. While existing studies have examined various aspects of green entrepreneurship and business sustainability, they often overlook the dynamics and mechanisms that underpin these phenomena, especially in emerging economies like Turkey [25]. One area where the literature falls short is in examining the role of GSC as a mediator between GEN and BS in Turkish SMEs [26]. While studies have recognized the importance of GSC in fostering sustainability initiatives, few have delved into its specific functions and impact within the Turkish SME context [27]. Understanding how GSC mediates the relationship between GEN and BS is crucial for identifying the mechanisms through which green initiatives translate into sustainable business practices in Turkey.

Furthermore, existing research tends to overlook the influence of environmental dynamism on the relationship between GEN, GSC, and BS in Turkish SMEs. Environmental dynamism means that the natural environment, rules, and market conditions can change very quickly. This can significantly impact the effectiveness of green business ideas and the utilization of structural capital [28]. However, studies often treat environmental dynamism as a peripheral factor rather than a central determinant of sustainability outcomes in SMEs [29]. Therefore, this study aims to fill this research gap by examining the specific relationship between GEN, GSC, and BS in Turkish SMEs, taking into account the moderating role of environmental dynamism. By analyzing these relationships, this research seeks to provide a comprehensive understanding of the mechanisms driving sustainable entrepreneurship in Turkey's SME sector and promoting sustainability in emerging economies.

We have developed the following concise research questions to fill the identified research gap and clarify the study's objectives: Firstly, this study aims to examine how the relationship between green entrepreneurship and green structural capital influences business sustainability in Turkish SMEs. Secondly, it seeks to understand the extent to which environmental dynamism moderates the relationship between green entrepreneurship (GEN), green structural capital (GSC), and business sustainability (BS) in Turkish SMEs. Thirdly, the investigation questions how green entrepreneurship itself impacts business sustainability within these enterprises. Fourthly, this study is interested in determining the extent to which green structural capital acts as a mediator in the relationship between green entrepreneurship and business sustainability. Lastly, it investigates how environmental dynamism affects the relationship between green entrepreneurship and business sustainability in Turkish SMEs, further delving into the complexities of how external environmental factors influence green business practices.

We designed these research questions to investigate the specific mechanisms underlying sustainable entrepreneurship in Turkish SMEs, with a focus on the roles of GEN, GSC, and environmental dynamism. This study aims to provide clear expectations for the reader regarding this research's exploration and contribution by directly linking these questions to the stated research gap. This study examines the relationship between green entrepreneurship and business sustainability in Turkish SMEs, with a focus on the mediating role of green structural capital and the moderating effect of environmental dynamism. This study, which is grounded in Green Theory, seeks to provide new insights into how green initiatives impact sustainability outcomes. Methodologically, it employs a quantitative approach using data from SMEs in the Turkish Trade Register. We expect the findings to guide strategic decision-making and policy formulation for SMEs in Turkey and similar economies, fostering sustainable business practices.

The structure of this paper is as follows: The introduction—examining the connections between green entrepreneurship, green structural capital, and business sustainability

within Turkish SMEs—begins with a literature review, establishing foundational theories and identifying research gaps. Section 3 details the quantitative research design and data collection. Section 4 analyzes the relationships and the roles of structural capital and environmental dynamism. Section 5 links findings to theoretical and practical implications, and Section 6 addresses limitations and suggests future research directions, ensuring a coherent exposition of how green initiatives impact sustainability outcomes in emerging markets.

2. Theoretical Background and Hypotheses Development

2.1. Green Theory

In international relations, Green Theory differs from mainstream theories such as liberalism and realism by adopting an “ecocentric” approach that prioritizes the environment and environmental issues over human concerns [30]. This approach seeks to challenge economic, political, and social hierarchies within a framework centered on the environment rather than humans. Unlike conventional paradigms like security, development, and the traditional state, Green Theory emerges as a critique of neoliberal globalization, representing a novel movement [31]. Initially emerging as a social movement, Green Theory gained political traction when the German Greens raised three fundamental questions: moral, resource, and waste problems [32]. As a result, Green Theory seeks to significantly alter classical perspectives by adopting a problem-solving approach to global environmental issues and emphasizing the importance of addressing the root causes of problems in order to effect change. It aims to strengthen the normative perspective. Green critical theorists reject the argument that modernization leads to environmental degradation and reject the notion of humanity’s dominance over nature. They also critique the idea that sustaining human life justifies exploiting nature as a means to an end [18]. In contrast to traditional environmentalism and political ecology, this presents a radical departure. It boldly questions established political, social, and economic frameworks, especially challenging mainstream liberal assumptions that transcend existing political boundaries.

Fundamentally, Green Theory promotes a unified moral viewpoint known as a “green theory of value”, which remains independent of particular practices or political organizations. For instance, a green ethical stance might advocate restraining human material progress to safeguard non-human nature, even proposing limitations on conventional liberties in favor of prioritizing the well-being of our planet over human interests [16]. In this ecocentric perspective, which stands in contrast to anthropocentrism, human needs and desires are considered within a broader ecological framework, prioritizing healthy ecosystems as essential for human health and well-being. Transboundary issues like air and water pollution and climate change affect all nations and populations, highlighting the ecological interconnectedness of human populations. Consequently, collective action is imperative, transcending national self-interests [33].

The existing literature highlights that green entrepreneurs are motivated by both ecological concerns and market opportunities [34], and that green entrepreneurship can drive innovation and lead to the development of new markets [35]. Furthermore, businesses that adopt green entrepreneurial practices tend to perform better in terms of sustainability metrics [36].

The literature suggests that green structural capital enables organizations to implement and sustain eco-friendly practices [37], acting as a foundation for continuous improvement in environmental performance and that companies with strong green structural capital can achieve better operational efficiencies and reduced costs [38]. Previous research highlights that sustainable business practices lead to enhanced corporate reputation and customer loyalty, there is a positive correlation between sustainability and financial performance [39], and sustainable businesses are more resilient to environmental and market fluctuations.

The literature suggests that high environmental dynamism creates challenges for maintaining stable operations as firms in dynamic environments need greater flexibility and adaptability [40], and environmental dynamism can impact the effectiveness of sustainable practices [41]. This research makes several original contributions to the existing body of

knowledge. While previous studies have explored green entrepreneurship and business sustainability separately, this study highlights the pivotal role of green structural capital as a mediating factor, providing a more nuanced understanding of how internal organizational capabilities influence sustainability outcomes.

By focusing on SMEs listed in the Turkish Trade Register, this study provides empirical evidence from an emerging market context, which is often underrepresented in sustainability research. This research advances the literature by examining how environmental dynamism moderates both direct and indirect relationships between green entrepreneurship, green structural capital, and business sustainability, offering insight into how external environmental factors influence the effectiveness of green practices. The findings offer practical recommendations for policymakers and SME managers in Turkey, emphasizing the importance of fostering green structural capital and considering environmental dynamism in strategic planning. By addressing these gaps, this study not only validates and extends Green Theory but also provides actionable insights for enhancing business sustainability in dynamic environments.

2.2. Green Entrepreneurship

Expanding upon Green Theory, the concept of GEN centers on entrepreneurial endeavors aimed at advancing environmental sustainability. GEN entails recognizing and seizing business opportunities that adhere to ecological principles and foster favorable environmental results. Despite the extensive research on social entrepreneurship, there has been a notable absence of inquiry into the motivations and factors driving GEN, which represents a distinct form of social entrepreneurship [42]. Green entrepreneurs are characterized by their innovation of products, services, and processes aimed at reducing environmental impact, conserving resources, and fostering sustainable consumption and production patterns [43]. GEN strives to foster a harmonious balance between human activities and ecological well-being, promoting sustainable practices for the benefit of our planet [33]. As the proportion of green enterprises in the economy increases, so does the potential for sustainable development. GEN represents a novel term within the realm of sustainability. Recently, a transformative strategy has surfaced, dedicated to reshaping businesses into environmentally conscious entities.

This approach focuses on mitigating their adverse effects on the environment while wholeheartedly embracing sustainability. The goal is to achieve this transformation without risking financial stability [44]. This study conceptualizes GEN as an independent construct, symbolizing the proactive engagement of Turkish SMEs in environmentally sustainable practices. This study examines the impact of GEN on BS, aiming to elucidate how entrepreneurial endeavors contribute to the ecological and economic performance of SMEs in Turkey.

2.3. Business Sustainability

The BS concept encompasses the seamless integration of sustainable considerations into organizational decision-making and operational processes. By harmonizing these three dimensions, businesses can foster long-term success while contributing positively to the world around them. In today's dynamic landscape, the imperative to prioritize environmental protection and embrace sustainable business practices has become indispensable. Meeting market demands and fulfilling stakeholder expectations now hinges on our ability to harmonize these dimensions effectively [15].

BS entails the adoption of strategies and practices that harmonize profitability with environmental and social responsibility. Concurrently, governments have intensified their focus on environmental protection while also addressing social needs and economic objectives [45]. Many firms recognize the importance of strengthening their modernization capabilities to fortify their competitive edge and promote the sustainability of their operations [46].

Sustainable development comes to execution when an organization proactively adopts strategies to realize the objectives and aspirations of its stakeholders, all while prioritizing the welfare of future generations. As previously defined, sustainability entails the ability to address economic and social requirements without exposing the ecological environment [47]. The concept of sustainability underscores the importance of attaining both business objectives and human well-being [48]. The definitions of sustainability highlighted earlier imply that companies should not focus solely on increasing shareholders' wealth [14,49].

2.4. Green Entrepreneurship and Business Sustainability

The significance of environmental protection and embracing sustainable business practices have risen to the forefront for companies striving to satisfy market demands and fulfill investor expectations. Governments, too, have heightened their focus on environmental protection while addressing social and economic objectives [14]. To better understand the underlying mechanisms linking GEN and BS, this study employed a paradigm rooted in institutional economics [50,51]. Theoretical frameworks play a crucial role in entrepreneurship research, particularly due to their focus on the dynamics of interactions and decision-making within economic evolution [52,53]. Expanding upon this viewpoint, researchers have extensively examined the role of institutions as catalysts for entrepreneurial endeavors and investigated their intricate ties to economic advancement [54,55].

Additionally, the authors in [56] identify BS as a key component of corporate sustainability management. BS entails meeting environmental goals while promoting sustainable corporate development. It represents a fundamental and indispensable concept for organizations [57]. The sustainable performance of a corporation is evident across multiple dimensions, including effective environmental pollution management, positive social impact, market share, and achieved profitability [58]. BS identifies environmental performance as a fundamental aspect. It encompasses enterprises' efforts to diminish carbon emissions, including initiatives such as reducing environmental incidents, increasing the use of renewable resources, minimizing waste, and optimizing supply utilization [59]. Scholars advocate that the future trajectory of corporate sustainability management should prioritize promoting green transformation, mitigating carbon emissions, and nurturing sustainable development domains [60]. Corporate green innovation assumes a critical role in enhancing environmental performance within the corporate landscape [61,62]. Therefore, building upon prior research:

H1: *GEN has a positive effect on BS.*

2.5. Green Entrepreneurship and Green Structural Capital

In recent times, an increasing body of scholarly work has centered around companies' endeavors to promote environmentally sustainable business practices. Specifically, there has been a strong focus on the growth and execution of GEN [12,63,64]. This field has gained substantial traction, emerging as a central topic in conversations about entrepreneurship and its influence on ecological aspects [65].

The GSC's pivotal role extends to shaping green environmental management. Among the numerous interconnections, the most critical link exists in the correlation between organizational culture and the advocacy for green initiatives. Currently, this organizational linkage is relatively weak. Consequently, fostering greater integration of organizational culture, especially policies about environmental management, becomes crucial in encouraging employee engagement with green development initiatives. Furthermore, by promoting sustainable transformation, the organization's enhanced adoption of GSC practices stands to significantly influence GEN [13].

GSC encompasses the resources and infrastructure crucial for fostering environmental sustainability within an organization. This includes the organizational structures, systems, and processes that facilitate and reinforce sustainable practices and environmental manage-

ment within a company. In today's competitive landscape, where businesses encounter heightened competition, GSC plays a vital role. Company management must recognize that relying solely on physical resources is no longer sufficient; instead, they must leverage the GSC at their disposal to remain competitive and sustainable. Since competitors do not necessarily possess intellectual capital, GSC provides the company with added value and a competitive advantage. By enabling the effective and efficient execution of operational activities, GSC enhances productivity. Previous research suggests that GSC positively impacts financial performance, growth, and firm value [66]. We propose the following hypothesis in support of the existing scholarly literature:

H2: *GEN has a positive effect on GSC.*

2.6. Green Structural Capital and Business Sustainability

The concept of GSC encompasses various critical elements within a company. A company can refine its processes and systems by increasing structural capital, allowing it to acquire green expertise and develop organizational capabilities. GSC functions as a potent mechanism for companies to comply with environmental sustainability regulations, bolster their reputation, and attract environmentally aware consumers and investors; however, it is essential to manage GSC effectively. Overinvestment in green resources that yield inadequate returns on investment can lead to negative outcomes. Striking the right balance is crucial. Interestingly, researchers have suggested that companies with robust GSC are more inclined to embrace and invest in innovative ideas and practices aimed at minimizing their environmental impact [67].

GSC plays a pivotal role in ensuring BS. The dimension-based analysis revealed that the strongest correlation exists between BS and the various aspects of GSC. Although the correlation relationship is moderate, it underscores the need to cultivate employee behavior that actively fosters innovation in environmental management. This, in turn, positively impacts BS, particularly in terms of the company's economic performance and operational cost efficiency. A profitable business not only influences welfare but also significantly contributes to the overall BS. As organizations navigate crucial choices, a meticulously crafted business budget and strategic work plan become imperative for achieving a harmonious equilibrium between well-being and environmental conservation [13,68]. We hypothesize, building on the foundations laid by previous studies:

H3: *GSC has a positive effect on BS.*

2.7. Green Structural Capital as a Mediator

GSC plays a pivotal role in shaping BS by acting as a mediator through green environmental management. Through both direct and indirect hypothesis testing, it has become apparent that green structural resources exert a detrimental impact on company sustainability. This implies that the current presence of GSC is detrimental to the company's sustainability. Nevertheless, when influenced by the factor of a green environment, this effect turns favorable. It means that the consistent implementation of organizational culture, dedication, and projects aimed at preserving energy and biodiversity actively supports green environmental management, thereby indirectly supporting the overall sustainability of the company [69]. A critical link exists between organizational culture and eco-friendly initiatives; however, given the relatively weak association, raising awareness and socializing about sustainable organizational practices is critical to increasing employee involvement in environmental progress. Furthermore, leveraging GSC within the organization has a positive impact on green advancement [13]. Advancing the discourse in the existing literature, we propose the following:

H4: *The relationship between GEN and BS is mediated by GSC.*

2.8. Environmental Dynamism as a Moderator

A dynamic environment encompasses the evolving landscape of GEN and environmental uncertainty, including changes in regulatory frameworks, market demands, technological progress, and the availability of natural resources [70,71]. This uncertainty stems from technological advancements and the competitive dynamics influenced by consumer preferences. Embracing a dynamic environment fosters creativity, stimulates innovation, and expands a company's perspective, particularly by enhancing organizational flexibility in response to shifting conditions. In such contexts, the competencies of managers and owners emerge as pivotal factors [72]. Conversely, ED pertains to the rapid evolution of customer needs and preferences, influenced by factors such as shortened product life cycles and expanded product diversity [73]. Elevated levels of ED pose both challenges and prospects for organizations, calling for adaptive strategies and responsive capacities. These may involve innovations in information technology, e-commerce, and heightened global competition [74].

Due to the fast rate of change, lack of discernible patterns, and inherent unpredictability, dynamic markets have a big effect on how firms decide to allocate resources, manage risk, and position themselves in the market [75]. Across this spectrum, environmental conditions range from stable to highly dynamic. In an ever-evolving environment, industry frameworks become intricate, characterized by unforeseeable changes in GEN, customer inclinations, product demand fluctuations, and supply dynamics. The non-linear and uncertain nature of these shifts renders existing products and services outdated, compelling the creation of novel solutions [76]. Firms navigating such environments must prioritize innovation, acknowledging unpredictability as an inherent aspect of their operating landscape [77]. We suggest the following in an effort to expand the current understanding:

H5: ED negatively moderates the association between GEN factors and GSC. Specifically, the impact of GEN on GSC is more prominent when SMEs face lower levels of environmental uncertainty.

H6: ED negatively moderates the association between GEN factors and BS. Specifically, the impact of GEN on BS is more prominent when SMEs face lower levels of environmental uncertainty.

H7: ED moderates the indirect relationship between GEN factors and BS. Specifically, the impact of GEN on BS is more prominent when SMEs face lower levels of environmental uncertainty.

We visually represent the hypothesized relationships among green entrepreneurship (GEN), green structural capital (GSC), business sustainability (BS), and environmental dynamism (ED) within the context of Turkish SMEs, building upon the theoretical framework previously delineated. Figure 1 below illustrates the conceptual model of this study, providing a visual overview of the proposed interrelationships and dynamics at play.

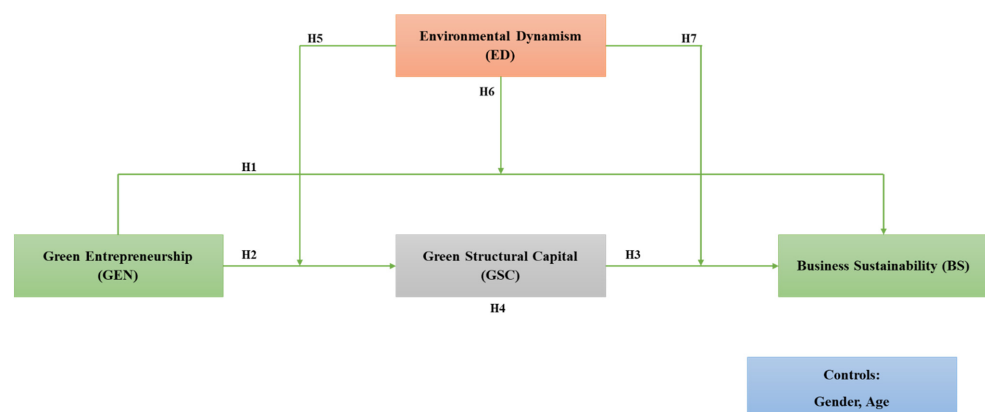


Figure 1. Model of the study.

3. Methods

3.1. Sample and Data Collection

This research adopts a cross-sectional research design approach, collecting data over three months at one point in time. The researchers distributed the questionnaires on site (physically) and electronically to the owners and managers of SMEs in Istanbul and Izmir. SMEs were selected because of their importance to the Turkish economy. The simple random technique [78] was employed to select SMEs listed in the Turkish Trade Register Gazette [79]. The managers and owners of the surveyed SMEs were approached and informed of the study's purpose in person and in writing. In return for their support of the research, they were offered a chance to receive feedback on the research findings. The voluntary participation of respondents was sought. Ethical guidelines of the University of Mediterranean Karpasia were followed. Participants received an unequivocal assurance that their answers would be handled with complete anonymity and confidentiality. Data collection occurred between 5 July 2023 and 2 October 2023. Managers and owners from 6152 SMEs registered with the Turkish Trade Register Gazette were sent an email outlining the purpose of the research. Many did not reply, and some declined to participate in the survey. The researchers then personally visit many of these SMEs to encourage participation and increase the sample size. Based on the table by [80], we needed to obtain data from 361 respondents. To achieve the minimum number and considering the low response rate of the survey method, we sent out 715 questionnaires. A total of 443 usable responses were retrieved, yielding a response rate of 61.96%.

The demographic characteristics of the survey participants are detailed in Table 1. The data reveal that the majority of respondents were male (89.39%), while 10.61% were female. Regarding firm age (measured in years), 102 respondents (23.02%) fell into the 1–5 year category, 127 (28.67%) in the 6–10 year range, 153 (34.54%) in the 11–15 year range, and 61 (13.77%) firms had existed for more than 15 years. In terms of firm size (based on the number of employees), 181 respondents (40.86%) represented small firms with 1–30 employees, 148 (33.41%) fell into the 31–60 employee range, 82 (18.51%) were in the 61–90 employee category, and 32 (7.22%) belonged to firms with over 90 employees. The sector distribution showed that wholesale and retail trade accounted for 57.79% (256 respondents), manufacturing for 20.54% (91 respondents), building materials for 14.67% (65 respondents), and scientific, professional, and technical activities for 13.77% (61 respondents).

Table 1. Demographic information.

Demographic (n = 443)	Descriptive	Frequency	% of n
Gender	Male	396	89.39
	Female	47	10.61
Firm age (years)	1–5	102	23.02
	6–10	127	28.67
	11–15	153	34.54
	Above 15	61	13.77
Firm size (number of employees)	1–30	181	40.86
	31–60	148	33.41
	61–90	82	18.51
	Above 90	32	7.22

Table 1. Cont.

Demographic (n = 443)	Descriptive	Frequency	% of n
Sector			
	Wholesale and retail trade	256	57.79
	Manufacturing	91	20.54
	Building materials	65	14.67
	Scientific, professional, and technical activities	31	7.00

The sample size of 443 was determined using Cochran's (1977) [81] formula for a small population of a known size, a widely recognized formula for determining an ideal sample size:

$$n0/(1 + (n0 - 1)/N).$$

where N = population.

The precision level using this formula is $\pm 5\%$ and the confidence level is 95%.

$$443/(1 + (443 - 1)/6153) = 362$$

This study obtained 443 valid responses, which is well above the required minimum sample size of 362; thus, our study's sample size was considered suitable.

3.2. Measures

To assess GEN, a set of 9 measurement items was adapted from [82]. This included items assessing the integration of environmental considerations into business practices, commitment to green research and development, and the drive toward market leadership in green innovations, reflecting both the entrepreneurial spirit aimed at minimizing environmental degradation and the pursuit of innovative green business models. We evaluated GSC using 5 items derived from [83]. These items reflect the accumulation and utilization of green knowledge within an organization, such as the superiority of environmental protection management systems compared to competitors, investment in environmentally friendly facilities, and capacity for developing green products. We gauged ED, a critical factor, using 4 items from [84–86]. These items capture the frequency and magnitude of changes in market conditions, including shifts in consumer demographics, governmental regulations, and product life cycles, underscoring the unpredictable nature of the external environment that businesses must navigate. Lastly, BS was quantified using a comprehensive set of 9 items sourced from reference [87]. This includes significant increases in revenues, market shares, and overall income, as well as improvements in environmental outcomes and occupational health. The detailed items used to measure each of these constructs are provided in Appendix A.

3.3. Data Analysis

In the data analysis process, several tools were utilized to examine the relationships and effects within the study. IBM SPSS V.27 Statistics version 27.0 facilitated data management, descriptive statistics, and inferential analyses. Additionally, IBM SPSS V.27 and Amos version 26.0 enabled CFA and SEM to assess complex relationships between latent variables. The PROCESS macro was utilized for conducting mediation and moderation analyses. Specifically, Model 4 examined whether GSC acts as a mediator in the relationship between GEN and BS. Additionally, Model 59 examined how ED moderates these effects. To assess common method bias, Harman's single-factor test and the marker variable technique were employed. Finally, the bootstrap method, with a 95% confidence interval, determined the statistical significance of the effects.

3.4. Common Method Bias (CMB)

To analyze CMB, we followed the approach suggested by [88]. This involved collecting data from well-informed respondents with relevant expertise, integrating measurement scales from various studies, incorporating items related to predictor constructs, and utilizing both positive and negative questions all while maintaining respondent anonymity.

Moreover, we conducted several statistical assessments to address potential CMB. Specifically, we utilized the marker variable technique as proposed by [89,90]. This technique involved using respondents' single-item experiences as a marker variable and performing ordinary least squares regression with the integrated conceptual model constructs. The regression outcomes revealed no significant differences when excluding the marker variable. Consequently, we found no substantial evidence of CMB issues in the collected data. Additionally, we followed the approach outlined by [91] to assess whether a single factor predominantly explained the variation across all measurements. The highest factor accounted for 30.18%, which falls below the recommended 50% cutoff. Based on this analysis, CMB is not a significant concern in this research. Lastly, the variance inflation scores (VIF) for all observed variables remained below 5, indicating that multicollinearity did not impact the results [78,92].

3.5. Measurement Model Estimation

Table 2 reveals the reliability and validity of the measurement model. The outcomes reveal that both reliability and validity were adequately addressed in this study. Specifically, the standardized factor loadings exceeded the threshold of 0.739, signifying robustness in the measurement model (Table 2 and Figure 2), and the values for Cronbach's alpha and composite reliability were higher than 0.7 for internal consistency [93,94]. In addition, the convergent validity was ensured by examining the AVE values, which were all higher than 0.5. This indicates that the indicators effectively converge to measure their respective constructs. Furthermore, discriminant validity was established by comparing the square root of AVEs with inter-factor correlations. Notably, the square root of AVEs was greater than the correlations between different constructs. This provides strong evidence that the measurement model discriminates well between distinct constructs. Overall, this study meticulously addressed the quality of the measurement model, ensuring its reliability, convergent validity, and discriminant validity [94]. In addition, descriptive statistics and a correlation matrix are summarized in Table 3.

Table 2. Reliability and convergent validity.

Construct/Items	SFL (λ)	Composite Reliability	Average Variance Extracted	Cronbach's Alpha
GEN		0.949	0.676	0.950
GEN1	0.859 ***			
GEN2	0.826 ***			
GEN3	0.798 ***			
GEN4	0.814 ***			
GEN5	0.855 ***			
GEN6	0.816 ***			
GEN7	0.831 ***			
GEN8	0.842 ***			
GEN9	0.752 ***			
GSC		0.898	0.638	0.899
GSC1	0.743 ***			
GSC2	0.739 ***			
GSC3	0.839 ***			
GSC4	0.776 ***			

Table 2. Cont.

Construct/Items	SFL (λ)	Composite Reliability	Average Variance Extracted	Cronbach's Alpha
GSC5	0.886 ***	0.887	0.662	0.887
ED				
ED1	0.867 ***			
ED2	0.795 ***			
ED3	0.795 ***			
ED4	0.796 ***	0.935	0.617	0.938
BS				
BS1	0.748 ***			
BS2	0.771 ***			
BS3	0.816 ***			
BS4	0.766 ***			
BS5	0.813 ***			
BS6	0.777 ***			
BS7	0.816 ***			
BS8	0.786 ***			
BS9	0.774 ***			

Note: $\chi^2 = 839.688$, $df = 300$, $\chi^2/df = 2.799$, CFI = 0.954, NFI = 0.930, GFI = 0.883, TLI = 0.946, GEN = GEN, GSC = GSC, ED = ED, BS = BS. *** All factor loadings are significant at $p < 0.001$.

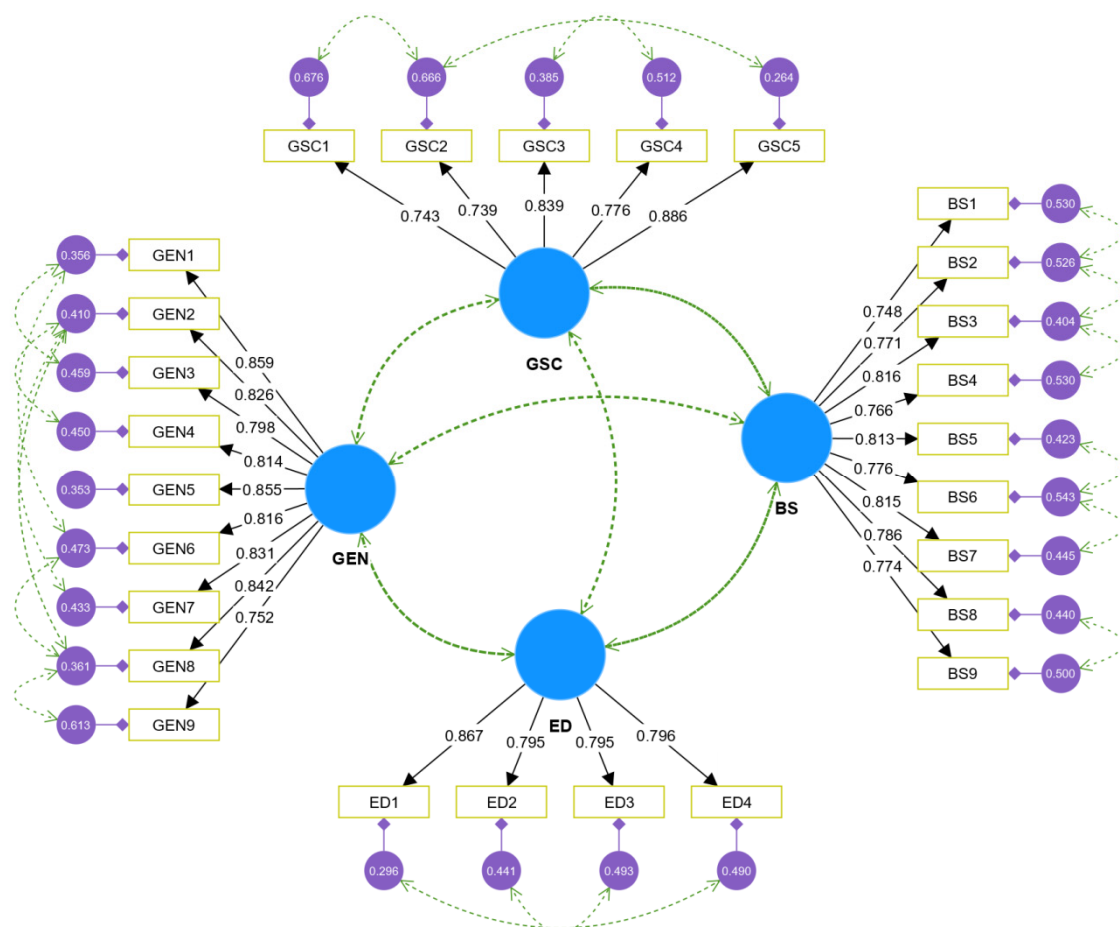


Figure 2. CFA outcomes displaying standardized factor loadings.

Table 3. Discriminant validity.

Construct	M	SD	GEN	GSC	ED	BS	Firm Age	Firm Size
GEN	3.994	0.979	(0.822)					
GSC	4.053	0.985	0.534 **	(0.799)				
ED	4.047	0.974	0.622 **	0.585 **	(0.814)			
BS	4.013	0.919	0.417 **	0.432 **	0.507 **	(0.786)		
Firm size	2.302	1.229	−0.035	−0.042	−0.006	−0.052	-	
Firm age	2.400	1.423	0.024	−0.031	−0.018	0.044	0.0163	-

** $p < 0.01$.

We used several parameters obtained through confirmatory factor analysis (CFA) to examine whether the hypothesized model fits the data collected. The analyses showed that the research model had an excellent fit ($\chi^2 = 839.688$, $df = 300$, $\chi^2/df = 2.799$, CFI = 0.954, NFI = 0.930, GFI = 0.883, and TLI = 0.946) demonstrated in Table 2. As recommended by [95,96], χ^2/df should be less than 3; GFI should be greater than 0.8; CFI, NFI, and TLI should all be greater than 0.9; and RMEA should be less than 0.08. The model fit parameters fall within the recommended cut-offs to confirm the quality of the data (i.e., an acceptable fit between the hypothesized model and the data).

4. Results

Hypotheses Testing

PROCESS by Hayes was used to examine the hypotheses. PROCESS is highly regarded for its ability to test complex mediation and moderated mediation models as it offers an in-depth examination of mediation and moderation, and it uses the bootstrap method to ensure reliable results [97,98]. PROCESS's Model 4 examined the direct and indirect effects [99]. The results of this analysis are summarized in Table 4. In step 1, GEN has a positive influence on GSC ($\beta = 0.839$, $t = 32.410$, $p < 0.001$). In step 2, GEN has a positive influence on BS ($\beta = 0.687$, $t = 22.779$, $p < 0.001$). In step 2, GSC has a positive influence on BS ($\beta = 0.208$, $t = 6.949$, $p < 0.001$). Thereby, this validates Hypotheses 1, 2, and 3.

Table 4. Mediation results.

95% Confidence Interval (with 5000 Resamples)							
	Coeff.	S.E	t	p	LLCI	ULCI	R ²
Step 1: Mediator model	Outcome: GSC						
Green Entrepreneurship (GEN)	0.839	0.026	32.410	0.000	0.788	0.890	0.695
Step 2: Response construct model	BS						
Green Entrepreneurship (GEN)	0.687	0.030	22.779	0.000	0.627	0.745	0.974
Green Structural Capital (GSC)	0.208	0.029	6.949	0.000	0.149	0.266	
Bootstrap indirect effects		BootSE			BootLLCI	BootULCI	
(Indirect effect of GEN on BS through GSC)	0.175	0.032			0.111	0.238	

Note: LL = lower level; UL = upper level.

The mediating (indirect) effect was examined using the bootstrap technique with 5000 samples for repeated sampling. The results showed that with GSC added as a mediator, the direct effect of GEN on BS was 0.687 (BootSE = 0.030) with a CI of [0.627, 0.745] (not containing zero). The indirect effect of GSC was 0.175 (BootSE = 0.032) with a CI of [0.111, 0.238] (not containing zero). These results validate the role of GSC as a mediator in the GEN-BS relationship; thereby, validating H4.

Concerning moderation analysis, PROCESS' model 59 was used to examine the moderation effects (i.e., conditional effects). In the moderation analysis, firm size and firm age were included as covariates. The results of the moderation analysis are illustrated in Table 5. In step 1 of Table 5, while the direct effect of GEN on GSC was significant ($\beta = 0.637$, $t = 12.257$, $p < 0.001$), the moderation of ED on the effect of GEN on GSC was non-significant ($\beta = 0.026$, $t = 0.994$, $p > 0.05$) with CI $[-0.019, 0.071]$, rejecting H5.

In step 2 of Table 5, the direct effect of GEN on BS was significant ($\beta = 0.636$, $t = 19.068$, $p < 0.001$). The moderation of ED on the effect of GEN on BS was significant ($\beta = 0.081$, $t = 2.130$, $p < 0.05$) with the CI $[0.006, 0.155]$. Given that the direction of the interaction (moderating effect) does not inherently reveal the true dynamic of the relationship between the independent variable, outcome variable, and the moderator, we employ a suitable graphical visualization of the technique proposed by [100] to depict the interaction effect. The interaction effect for this particular is illustrated in Figure 3. Figure 3 demonstrates that the effect of GEN on BS is stronger when firms operate under low ED. GEN will lead to a major improvement in BS when firms are operating in ED conditions (i.e., mean or low levels), which support H6.

Table 5. Moderation results.

Step 1: Outcome Variable = GSC	β	S.E (t)	ρ	LLCI	ULCI
Co: Firm size	−0.013	0.006 (0.403)	0.669	−0.020	0.011
Co: Firm age	−0.007	0.003 (−1.005)	0.054	−0.034	0.006
GEN	0.637	0.052 (12.257)	0.000	0.535	0.739
ED	0.757	0.049 (15.353)	0.000	0.660	0.854
GEN $\times$ ED (interaction)	0.026	0.004 (0.994)	0.000	−0.019	0.071
R ²	0.806 ***				
Step 2: Outcome = BS					
Co: Firm size	−0.009	0.006 (0.601)	0.722	−0.042	0.011
Co: Years of establishment	−0.010	0.003 (−1.135)	0.054	−0.088	0.019
GEN	0.636	0.033 (19.068)	0.000	0.571	0.702
GSC	0.131	0.037 (3.518)	0.001	0.058	0.205
ED	0.035	0.036 (0.950)	0.342	−0.037	0.106
GEN $\times$ ED (interaction)	0.081	0.037 (2.130)	0.034	0.006	0.155
GSC $\times$ ED (interaction)	0.113	0.038 (2.935)	0.004	0.037	0.188
R ²	0.861 ***				
The conditional effect of GEN on BS at different levels of ED					
Low ED (−1SD)	0.713	0.050 (14.354)	0.000	0.616	0.811
Mean	0.636	0.033 (12.068)	0.000	0.571	0.702
High ED (+1SD)	0.557	0.049 (11.312)	0.000	0.461	0.654
The conditional indirect effect of GEN on BS through structural capital					
Low ED (−1SD)	0.105	0.019 (5.618)	0.000	0.068	0.142
Mean	0.003	0.001 (2.292)	0.022	0.005	0.033
High ED (+1SD)	0.009	0.004 (2.002)	0.045	0.002	0.017

*** $p < 0.001$.

In a similar, Figure 4 visually depicts the interaction effect of H7, plotted at the minus-one standard deviation, mean, and plus-one standard deviation of ED. Particularly, the conditional indirect effect reveals that the link between GEN and BS is more pronounced

when firms operate in environments characterized by low dynamism; this finding provides empirical support for H7.

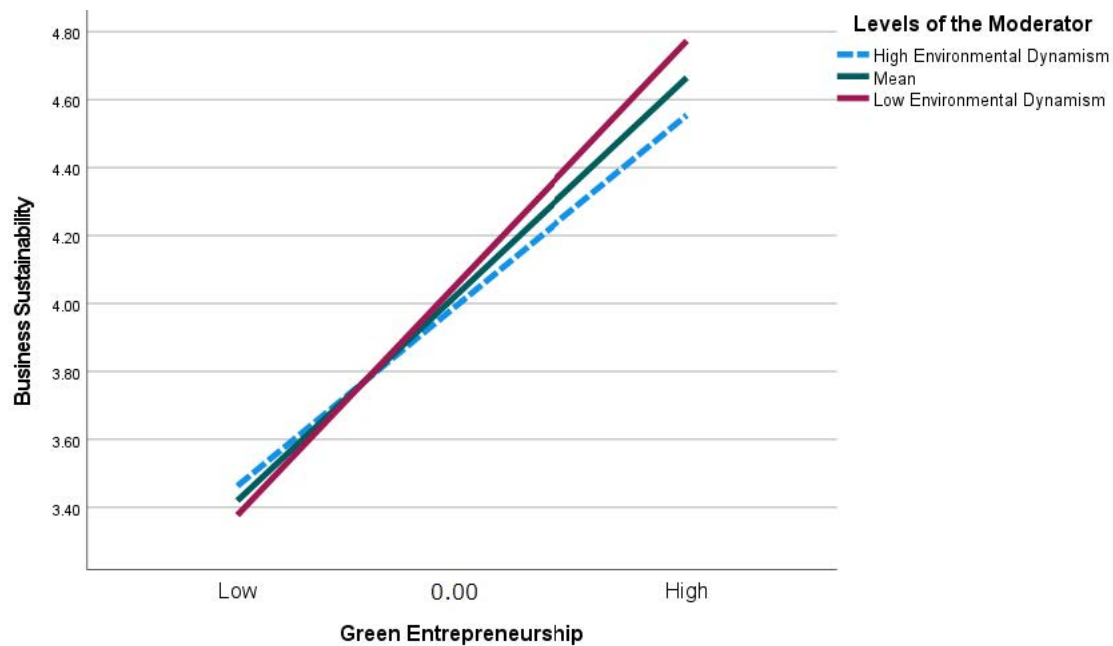


Figure 3. Plot of the moderation effect of ED between GEN and BS.

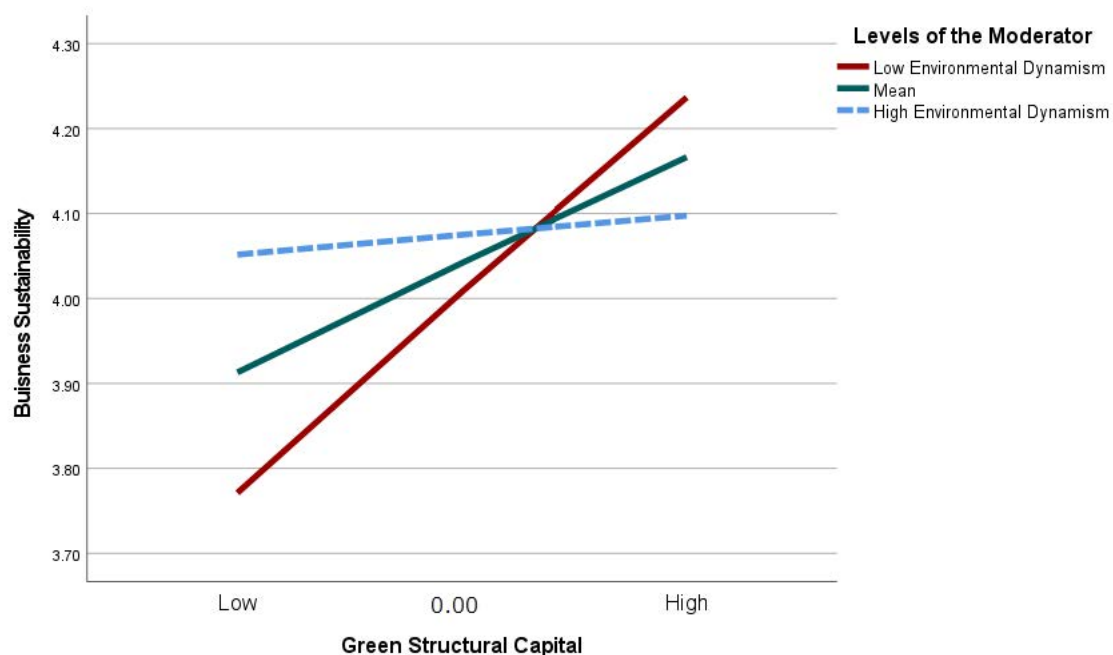


Figure 4. The plot of the moderation effect of ED between the indirect of GEN on BS through GSC.

5. Discussion

This study examines the relationships between green entrepreneurship, green structural capital, and business sustainability in Turkish SMEs, offering significant contributions to both theory and practice. Firstly, the findings robustly support the initially proposed hypotheses. The analysis confirmed the hypothesized positive relationship between green entrepreneurship and business sustainability. This aligns with the theoretical underpinnings of the study and validates previous research emphasizing the pivotal role of green entrepreneurship in driving sustainable business practices. Furthermore, the mediation

analysis revealed that green structural capital mediates the relationship between green entrepreneurship and business sustainability. This mediation effect underscores the importance of accumulating green-specific resources and capabilities within SMEs to leverage environmental initiatives for sustainable business outcomes.

Regarding the moderation effect of environmental dynamism, the findings extend beyond the initial hypotheses. While we anticipated that environmental dynamism would moderate the relationship between green entrepreneurship and business sustainability, the strength of this moderation was more pronounced than expected. SMEs operating in environments characterized by higher levels of environmental dynamism experienced significantly enhanced benefits from engaging in green entrepreneurial activities. This unexpected finding underscores the importance of adaptive strategies in navigating dynamic environmental contexts and highlights the potential for SMEs to leverage environmental challenges as opportunities for sustainable growth.

When comparing the findings to existing studies, we observe both consistency and disparity. Consistent with prior research, this study confirms the positive influence of green entrepreneurship on business sustainability [36,101]. People widely recognize green entrepreneurship as a catalyst for sustainable business practices, characterized by proactive environmental initiatives and innovative strategies [102]. The findings reinforce this understanding, indicating that SMEs that prioritize environmental responsibility tend to exhibit higher levels of business sustainability. However, this study goes beyond previous research by elucidating the mediating role of green structural capital, which has received comparatively less attention in the literature. While prior studies have highlighted the importance of green entrepreneurship, this research emphasizes the significance of firm-specific resources and capabilities in translating green initiatives into sustainable competitive advantage [103]. This underscores the importance of not only engaging in environmentally responsible practices but also strategically investing in the development of green structural capital to sustain long-term sustainability performance [104]. By drawing attention to the mediating mechanism of green structural capital, our study contributes to a deeper understanding of the underlying processes driving the relationship between green entrepreneurship and business sustainability.

Furthermore, while previous studies have acknowledged the importance of environmental context in shaping sustainability outcomes, this research provides novel insights into the moderation effect of environmental dynamism. Traditional approaches often view environmental context in static terms, overlooking the dynamic nature of environmental challenges faced by SMEs [105]. By incorporating the concept of environmental dynamism as a moderator, our study recognizes that the effectiveness of green entrepreneurship initiatives may vary depending on the rate and magnitude of environmental changes. SMEs operating in rapidly evolving environmental landscapes may encounter unique opportunities and threats, requiring adaptive strategies to capitalize on emerging trends and mitigate risks effectively. Our findings highlight the need for SMEs to align their green initiatives with the dynamic nature of the external environment, fostering resilience and agility in the pursuit of sustainable business practices.

By deepening our understanding of the interaction between green entrepreneurship, green structural capital, and environmental dynamism, our study contributes to a more nuanced understanding of sustainable business practices in the context of SMEs [106]. Through empirical validation of our conceptual framework, we provide actionable insights for SMEs seeking to integrate environmental considerations into their strategic agenda, ultimately enhancing their capacity to navigate complex environmental challenges while fostering long-term business sustainability. Furthermore, Ref. [107] emphasizes the importance of green structural capital in improving SMEs' environmental and economic performance. These studies complement our findings and further validate the importance of green entrepreneurship and green structural capital in promoting sustainable business practices.

6. Conclusions

6.1. Theoretical Contribution

This study's findings significantly contribute to the theoretical landscape of GEN and BS by offering new understanding and expanding upon existing theories. Firstly, this research develops and tests a comprehensive theoretical model that integrates GEN, GSC, and BS within the context of Turkish SMEs. By empirically examining these relationships, this study advances existing theories by providing a better understanding of how green initiatives influence sustainable business practices in the SME sector [36]. Moreover, this research contributes to Green Theory by contextualizing its application within the specific context of SMEs in emerging economies, particularly in Turkey.

While Green Theory has predominantly been examined in the context of large corporations and developed economies, this study demonstrates its relevance and applicability to SMEs operating in emerging markets [108]. By highlighting the mechanisms through which green entrepreneurship fosters business sustainability in Turkish SMEs, this research enriches Green Theory and provides valuable insights into its adaptation and implementation in diverse organizational settings [18].

Furthermore, this study's findings have broader implications for theories related to environmental dynamism, strategic management, and organizational behavior. By examining the moderation role of ED, this research elucidates how external environmental factors shape the effectiveness of green entrepreneurial initiatives in promoting BS. This contributes to a deeper understanding of strategic management theories by emphasizing the importance of aligning environmental strategies with dynamic external contexts to achieve sustainable outcomes [109]. Theoretically, GSC's role as a mediator is also important because it highlights the organizational mechanisms that make it easier to turn GEN into sustainable business practices [13]. This finding extends theories of organizational behavior by emphasizing the role of internal structures and processes in involving green resources and capabilities for sustainable development. By evaluating the conditions under which green entrepreneurship impacts BS, this study provides theoretical insights into the complex interplay between environmental initiatives and organizational outcomes [110]. In addition, this research advances theoretical discourse in green entrepreneurship and business sustainability by developing a comprehensive model that integrates multiple theoretical perspectives. By contextualizing these theories within Turkish small and medium-sized businesses and examining their connections to environmental change, strategic management, and organizational behavior, this study demonstrates how GEN promotes sustainable business practices.

6.2. Practical Implications

The examination of green entrepreneurship, green structural capital, and business sustainability within the context of SMEs in Turkey represents a unique convergence that holds significant promise for both theoretical understanding and practical application. Within the dynamic and ever-changing economic context of Turkey, this research provides a comprehensive account of how SMEs navigate and contribute to sustainability initiatives in response to environmental changes. Based on the empirical evidence, it is crucial to outline the practical implications that arise, which can serve as a guiding light for SMEs, policymakers, and scholars.

6.2.1. Practical Implications for SMEs

This study's findings highlight the strategic importance of incorporating green entrepreneurship (GEN) and green structural capital (GSC) into the fundamental business models of small and medium-sized enterprises (SMEs). We advise SMEs to view environmental sustainability as a strategic pathway to foster innovation, gain a competitive edge, and ensure long-term sustainability rather than merely adhering to regulations or ethical responsibilities. Small and medium-sized enterprises (SMEs) can access fresh business prospects that correspond to the increasing worldwide demand for eco-friendly goods and

services by adopting GEN. This entails adopting a proactive approach to identifying and capitalizing on these opportunities, which necessitates a fundamental shift in perspective toward innovation focused on sustainability.

Furthermore, the crucial significance of GSC underscores the imperative for SMEs to allocate resources and develop their internal capacities and assets specifically focused on sustainability. This entails the creation of organizational frameworks, systems, and procedures that enable the efficient execution of environmentally sustainable practices. Small and medium-sized enterprises (SMEs) should give priority to developing a robust green supply chain (GSC), as it not only improves their sustainability performance but also establishes them as appealing collaborators in the green supply chain, thus creating new market prospects.

This study reveals that SMEs operating in highly dynamic environments can greatly benefit from green entrepreneurial activities due to the intricate role of environmental dynamism (ED); hence, it is imperative for small and medium-sized enterprises (SMEs) to foster agility and resilience in order to adjust their strategies in light of swift environmental fluctuations. This entails remaining aware of regulatory changes, market dynamics, and technological progress that could potentially influence sustainability initiatives. By doing this, small and medium-sized enterprises (SMEs) can effectively utilize the opportunities provided by environmental dynamism to advance their sustainability agenda.

For instance, a textile manufacturing SME can invest in research and development to create eco-friendly dyeing processes, utilizing natural dyes and water recycling systems to reduce environmental impact. Similarly, a construction company can develop partnerships with suppliers to source sustainable materials and adopt green building practices, leveraging collaborative networks to enhance its reputation in sustainable construction. Integration of sustainability into business strategies can be exemplified by a food processing SME setting targets for reducing food waste and packaging materials, and aligning objectives with environmental sustainability to improve operational efficiency. Furthermore, adaptation to environmental dynamism involves a renewable energy technology startup anticipating market shifts and regulatory changes to capitalize on emerging opportunities in the renewable energy sector.

Collaboration and knowledge-sharing among SMEs in the tourism sector can promote sustainable tourism practices, fostering collective efforts to reduce environmental footprints and enhance industry sustainability. Implementing comprehensive sustainability reporting frameworks allows manufacturing SMEs to track key performance indicators transparently, building trust and credibility with stakeholders while driving continuous improvement in environmental performance. These examples illustrate the practical relevance of green entrepreneurship practices in addressing environmental challenges and driving business sustainability among SMEs in Turkey.

6.2.2. Policy Implications

This study's findings suggest the need for a regulatory and institutional framework that promotes the involvement of small and medium-sized enterprises (SMEs) in green entrepreneurship and sustainability practices from a policy standpoint. Policymakers ought to contemplate the formulation and execution of focused incentives and support initiatives aimed at fostering the adoption of environmentally friendly technologies, practices, and innovations among small and medium-sized enterprises (SMEs). Possible measures could encompass tax incentives, financial aid, specialized support, and the availability of environmentally friendly funding alternatives.

Moreover, it is imperative to implement policies that bolster the accessibility of information and resources pertaining to sustainability for small and medium-sized enterprises (SMEs). Creating platforms for the exchange of knowledge, cooperation, and the development of skills can enable SMEs to effectively navigate the intricacies of sustainability practices. It is critical for policymakers to prioritize the advancement of infrastructure and

ecological frameworks that foster the expansion of green entrepreneurship. This entails the establishment of green industrial parks, incubators, and accelerators.

6.3. Limitations and Future Directions

This study offers valuable insights into the relationships between green entrepreneurship (GEN), green structural capital (GSC), and business sustainability (BS) in Turkish SMEs; however, it is important to acknowledge the limitations of this study and consider them in future research. An important limitation is the potential difficulty of applying the findings to contexts other than Turkish SMEs, as there may be variations in regulatory frameworks and market conditions. Given this constraint, future research should evaluate the proposed model in various cultural and regulatory contexts to improve the results' applicability.

Additionally, the use of self-report measures may introduce biases, such as social desirability effects, which can impact the accuracy of the data. To mitigate these effects, future research could use more objective data collection methods or triangulate data sources. Moreover, this study's cross-sectional design restricts our capacity to definitively establish causal relationships between the variables. We recommend using longitudinal or experimental designs in future research to more accurately establish causality and capture the dynamics of GEN, GSC, and BS over time.

The evaluation of environmental dynamism (ED) in this study may not comprehensively capture the complexities of the business environment. Subsequent research could investigate the use of more extensive, potentially subjective assessments to gain a deeper understanding of how ED impacts green entrepreneurial initiatives and business sustainability. Incorporating additional potential moderating and mediating variables into the model could enhance our comprehension of the underlying mechanisms.

To address the limitations identified in this study, we suggest several avenues for future research that can enhance our comprehension of green entrepreneurship, green structural capital, and business sustainability. An important approach involves conducting cross-cultural studies. These studies would investigate the extent to which the findings can be applied in various environmental and regulatory situations, thus assessing the strength and validity of the theoretical model developed in this study and improving its ability to be applied to different scenarios. Another crucial approach involves the implementation of longitudinal designs. These designs would enable researchers to analyze the progression of connections between green entrepreneurship and business sustainability over time. This methodology offers a more distinct understanding of the cause-and-effect relationships and has the potential to uncover the lasting impacts of green entrepreneurial initiatives on sustainable business practices.

Gaining a comprehensive understanding of these dynamics is essential for formulating strategies that promote long-term environmental and economic well-being in SMEs. In addition, the inclusion of qualitative methods provides an avenue to investigate the subjective aspects of green entrepreneurship, green structural capital, and environmental dynamism. Qualitative research has the potential to provide a more profound understanding of the subjective experiences and strategies employed by SMEs as they navigate their intricate business environments. This methodological expansion would enhance the quantitative findings and offer a more nuanced comprehension of how SMEs adopt and gain advantages from environmentally friendly practices in various settings. This extensive research has the potential to greatly enhance our understanding of both theoretical concepts and practical implementations, ultimately facilitating the development of more efficient and flexible, environmentally friendly business strategies.

Author Contributions: Writing—original draft, K.T.; Supervision, S.B., A.A. and A.B. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: This research was carried out in compliance with the ethical guidelines and protocols for studies involving human subjects, as approved by the University of Mediterranean Karpasia Institutional Review Board (IRB).

Informed Consent Statement: All participants in this study provided their informed consent.

Data Availability Statement: The data from this study can be requested from the corresponding author, Ahmad Alzubi.

Conflicts of Interest: The authors report no conflicts of interest.

Appendix A

Variable	Description
GEN	Green Entrepreneurship (Jiang et al., 2018 [111]; Lotfi et al., 2018 [112])
GEN 1	Green entrepreneurship eliminates environmental degradation.
GEN 2	The company should establish a balance between raising profit, considering the environment, and taking into account innovation and modern methods for green business.
GEN 3	Producing products and services for profitability and green commerce is a priority.
GEN 4	Green businesses present opportunities for making profit from ecological scopes.
GEN 5	Green entrepreneurship serves as a driving force for triggering new economic growth in modern economies.
GEN 6	When facing with uncertainty, we have an aggressive attitude toward green projects.
GEN 7	We attach great importance to green research and development and green technology innovation.
GEN 8	We attach great importance to green research and development and green technology innovation.
GEN 9	Our company has a tendency to become market leader and always takes the lead in introducing green products, services, or technologies.
GSC	Green Structural Capital (Wang and Juo, 2021 [83])
GSC 1	Our environmental protection management system is superior to competitors.
GSC 2	We invest in more environmentally friendly facilities than our competitors.
GSC 3	We have a better capacity to develop green products than our competitors.
GSC 4	We design operating processes for smooth environmental protection.
GSC 5	We have an environmental knowledge management system designed to facilitate the accumulation of environmental knowledge.
ED	Environmental Dynamism (Azadegan et al., 2013 [84]; Chan et al., 2016 [85]; Li et al., 2020 [86])
ED 1	Major changes in the modes of production and/or service provision.
ED 2	Major changes in consumer demographics.
ED 3	Frequent and major changes in government regulations.
ED 4	Short product life cycle.
BS	Business Sustainability (Yong et al., 2020 [87])
BS 1	Significant increase in the general level of revenues.
BS 2	Significant increase in the general level of market shares.
BS 3	Significant improvement in the general level of sales growth.
BS 4	Significant increase in the general level of investment.
BS 5	Significant increase in overall income.
BS 6	Significant improvement in its overall environmental situation.
BS 7	Decrease in costs for materials purchasing.
BS 8	Improved occupational health and safety of employees.
BS 9	Increases social reputation.

References

1. Başçı, S.; Durucan, A. A review of small and medium sized enterprises (SMEs) in Turkey. *Yildiz Soc. Sci. Rev.* **2017**, *3*, 59–79.
2. Zhongming, Z.; Linong, L.; Xiaona, Y.; Wangqiang, Z.; Wei, L. *OECD SME and Entrepreneurship Outlook 2021*; OECD: Paris, France, 2021.
3. Yasir, N.; Babar, M.; Mehmood, H.S.; Xie, R.; Guo, G. The environmental values play a role in the development of green entrepreneurship to achieve sustainable entrepreneurial intention. *Sustainability* **2023**, *15*, 6451. [\[CrossRef\]](#)
4. Gray, B.J.; Duncan, S.; Kirkwood, J.; Walton, S. Encouraging sustainable entrepreneurship in climate-threatened communities: A Samoan case study. *Entrep. Reg. Dev.* **2014**, *26*, 401–430. [\[CrossRef\]](#)
5. Baykal, E.; Divrik, B. Employee involvement in sustainability projects in emergent markets: Evidence from Turkey. *Sustainability* **2023**, *15*, 13929. [\[CrossRef\]](#)
6. Karadag, H. The role and challenges of small and medium-sized enterprises (SMEs) in emerging economies: An analysis from Turkey. *Bus. Manag. Stud.* **2015**, *1*, 179–188. [\[CrossRef\]](#)
7. Apak, S.; Atay, E. Global innovation and knowledge management practice in small and medium enterprises (SMEs) in Turkey and the Balkans. *Procedia-Soc. Behav. Sci.* **2014**, *150*, 1260–1266. [\[CrossRef\]](#)
8. Saygili, E.; Uye Akcan, E.; Ozturkoglu, Y. An exploratory analysis of sustainability indicators in Turkish small- and medium-sized industrial enterprises. *Sustainability* **2023**, *15*, 2063. [\[CrossRef\]](#)
9. Pieloch-Babiarz, A.; Misztal, A.; Kowalska, M. An impact of macroeconomic stabilization on the sustainable development of manufacturing enterprises: The case of Central and Eastern European Countries. *Environ. Dev. Sustain.* **2021**, *23*, 8669–8698. [\[CrossRef\]](#)
10. Fitri, A.; Diamastuti, E.; Romadhon, F.; Maharani, H. The effect of green intellectual capital on SMEs' business sustainability. *J. Bisnis Dan Manaj.* **2022**, *9*, 55–64. [\[CrossRef\]](#)
11. Saari, U.A.; Joensuu-Salo, S. Green entrepreneurship. In *Responsible Consumption and Production*; Springer International Publishing: Cham, Switzerland, 2022; pp. 302–312. ISBN 978-3-319-95726-5. [\[CrossRef\]](#)
12. Buffa, F.; Franch, M.; Rizio, D. Environmental management practices for sustainable business models in small and medium sized hotel enterprises. *J. Clean. Prod.* **2018**, *194*, 656–664. [\[CrossRef\]](#)
13. Nawangsari, L.C. The effect of green human capital, green structural capital and green relation capital on company sustainability by mediating green environment management. *Acad. J. Interdiscip. Stud.* **2022**, *11*, 154. [\[CrossRef\]](#)
14. Hanaysha, J.R.; Al-Shaikh, M.E.; Joghee, S.; Alzoubi, H.M. Impact of innovation capabilities on business sustainability in small and medium enterprises. *FIIB Bus. Rev.* **2022**, *11*, 67–78. [\[CrossRef\]](#)
15. Adams, R.; Bessant, J.; Phelps, R. Innovation management measurement: A review. *Int. J. Manag. Rev.* **2006**, *8*, 21–47. [\[CrossRef\]](#)
16. Tayyar, A.R.I.; Gökpınar, F.B. Climate-migration: A security analysis within the context of green theory. *Uluslar. İlişkiler Derg.* **2020**, *17*, 41–53.
17. Eckersley, R. Green theory. In *International Relations Theories: Discipline and Diversity*; Dunne, T., Kurki, M., Smith, S., Eds.; Oxford University Press: Oxford, UK, 2007; pp. 247–265. ISBN 9780199548866.
18. Ozturk, T.; Durak, İ.N. EU environmental policies in the context of green theory and Türkiye's adaptation process. *Alanya Akad. Bakış* **2024**, *8*, 224–226. [\[CrossRef\]](#)
19. Andrade, J.; Franco, M.; Mendes, L. Technological capacity and organisational ambidexterity: The moderating role of environmental dynamism on Portuguese technological SMEs. *Rev. Manag. Sci.* **2021**, *15*, 2111–2136. [\[CrossRef\]](#)
20. Tajeddini, K.; Mueller, S. Moderating effect of environmental dynamism on the relationship between a firm's entrepreneurial orientation and financial performance. *Entrep. Res. J.* **2018**, *9*, 20180283. [\[CrossRef\]](#)
21. Wamba, S.F.; Dubey, R.; Gunasekaran, A.; Akter, S. The performance effects of big data analytics and supply chain ambidexterity: The moderating effect of environmental dynamism. *Int. J. Prod. Econ.* **2020**, *222*, 107498. [\[CrossRef\]](#)
22. Wu, J.; Wood, G.; Chen, X.; Meyer, M.; Liu, Z. Strategic ambidexterity and innovation in Chinese multinational vs. indigenous firms: The role of managerial capability. *Int. Bus. Rev.* **2020**, *29*, 101652. [\[CrossRef\]](#)
23. Bierly, P.E., III; Daly, P.S. Alternative knowledge strategies, competitive environment, and organizational performance in small manufacturing firms. *Entrep. Theory Pract.* **2007**, *31*, 493–516. [\[CrossRef\]](#)
24. Yunita, T.; Sasmoko, S.; Bandur, A.; Alamsjah, F. Organizational ambidexterity: The role of technological capacity and dynamic capabilities in the face of environmental dynamism. *Heliyon* **2023**, *9*, e14817. [\[CrossRef\]](#) [\[PubMed\]](#)
25. Wang, L.; Ur Rehman, A.; Xu, Z.; Amjad, F.; Ur Rehman, S. Green corporate governance, green finance, and sustainable performance nexus in Chinese SMEs: A mediation moderation model. *Sustainability* **2023**, *15*, 9914. [\[CrossRef\]](#)
26. Hussain, Z. Green entrepreneurial practices among small and medium enterprises in Karachi, Pakistan. In *Entrepreneurship and Green Finance Practices: Avenues for Sustainable Business Start-Ups in Asia*; Emerald Publishing Limited: Bingley, UK, 2023; pp. 47–76. ISBN 978-1-80455-678-8. [\[CrossRef\]](#)
27. Yu, D.; Tao, S.; Hanan, A.; Ong, T.S.; Latif, B.; Ali, M. Fostering green innovation adoption through green dynamic capability: The moderating role of environmental dynamism and big data analytic capability. *Int. J. Environ. Res. Public Health.* **2022**, *19*, 10336. [\[CrossRef\]](#) [\[PubMed\]](#)
28. Wang, S.; Zhang, X. Influence of environmental regulation on corporate green supply chain management: The regulating effect of environmental dynamism. *Front. Environ. Sci.* **2022**, *10*, 947022. [\[CrossRef\]](#)

29. Seo, E.H.; Kim, C.Y.; Kim, K. A study on the mechanisms linking environmental dynamism to innovation performance. *Sustainability* **2020**, *12*, 9999. [\[CrossRef\]](#)
30. Çelik, H.; Çoker, G. Doğu Hindistan şirketi ve İngiliz Raj'ın Hindistan'daki hâkimiyeti: Yeşil teori çerçevesinde bir analiz. *Akad. Hassasiyetler* **2021**, *8*, 377–395.
31. Dunne, T.; Kurki, M.; Smith, S. (Eds.) *International Relations Theories: Discipline and Diversity*; Oxford University Press: New York, NY, USA, 2021; ISBN 9780198814443. [\[CrossRef\]](#)
32. Üste, R.B. Doğanın Siyaset Paradigması: Yeşil Siyaset. *Sos. Beşeri Bilim. Derg.* **2015**, *7*, 38–54.
33. Dyer, H.C. Green theory. In *International Relations Theory*; McGlinchey, S., Walters, R., Scheinpflug, C.E., Eds.; International Relations: Bristol, UK, 2017; pp. 84–90. ISBN 978-1-910814-19-2.
34. Tien, N.H.; Tien, N.V.; Mai, N.P.; Duc, L.D.M. Green entrepreneurship: A game changer in Vietnam business landscape. *Int. J. Entrep. Small Bus.* **2023**, *48*, 408–431. [\[CrossRef\]](#)
35. Soomro, B.A.; Moawad, N.F.; Saraih, U.N.; Abdelwahed, N.A.A.; Shah, N. Going green with the green market and green innovation: Building the connection between green entrepreneurship and sustainable development. *Kybernetes* **2024**, *53*, 1484–1504. [\[CrossRef\]](#)
36. Schaltegger, S.; Wagner, M. Sustainable entrepreneurship and sustainability innovation: Categories and interactions. *Bus. Strategy Environ.* **2011**, *20*, 222–237. [\[CrossRef\]](#)
37. Sabir, M.R.; Rehman, M.; Asghar, W. Assessing the mediating role of organization learning capability between the relationship of green intellectual capital and business sustainability. *J. Bus. Soc. Rev. Emerg. Econ.* **2020**, *6*, 1289–1301.
38. Aragón-Correa, J.A.; Sharma, S. A contingent resource-based view of proactive corporate environmental strategy. *Acad. Manag. Rev.* **2003**, *28*, 71–88. [\[CrossRef\]](#)
39. Martínez-Ferrero, J.; Frias-Aceituno, J.V. Relationship between sustainable development and financial performance: International empirical research. *Bus. Strategy Environ.* **2015**, *24*, 20–39. [\[CrossRef\]](#)
40. Schilke, O. On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strateg. Manag. J.* **2014**, *35*, 179–203. [\[CrossRef\]](#)
41. Chan, H.K.; Yee, R.W.; Dai, J.; Lim, M.K. The moderating effect of environmental dynamism on green product innovation and performance. *Int. J. Prod. Econ.* **2016**, *181*, 384–391. [\[CrossRef\]](#)
42. Taylor, D.W.; Walley, E.E. The green entrepreneur: Opportunist, maverick or visionary. *Int. J. Entrep. Small Bus.* **2004**, *1*, 56–69. [\[CrossRef\]](#)
43. Tien, N.H.; Hiep, P.M.; Dai, N.Q.; Duc, N.M.; Hong, T.T.K. Green entrepreneurship understanding in Vietnam. *Int. J. Entrep.* **2020**, *24*, 1–14.
44. Misztal, A.; Kowalska, M. Factors of green entrepreneurship in selected emerging markets in the European Union. *Environ. Dev. Sustain.* **2023**, 1–24. [\[CrossRef\]](#)
45. Bansal, P.; DesJardine, M.R. Business sustainability: It is about time. *Strateg. Org.* **2014**, *12*, 70–78. [\[CrossRef\]](#)
46. Drexhage, J.; Murphy, D. *Sustainable Development: From Brundtland to Rio 2012*; United Nations Headquarters: New York, NY, USA, 2010; pp. 9–13.
47. Sartori, S.; Latrónico, F.; Campos, L. Sustainability and sustainable development: A taxonomy in the field of literature. *Ambiente Soc.* **2014**, *17*, 1–22. [\[CrossRef\]](#)
48. Meng, J. Sustainability: A framework of typology based on efficiency and effectiveness. *J. Macromark.* **2015**, *35*, 84–98. [\[CrossRef\]](#)
49. Freeman, R. *Strategic Management: A Stakeholder Perspective*; Prentice-Hall: Boston, MA, USA, 1984; ISBN 0273019139.
50. North, D.C. *Institutions, Institutional Change and Economic Performance*; Cambridge University Press: Cambridge, UK, 1990. [\[CrossRef\]](#)
51. North, D.C. *Understanding the Process of Economic Change*; Princeton University Press: Princeton, NJ, USA, 2006; ISBN 9780691145952.
52. Urbano, D.; Aparicio, S.; Audretsch, D. Twenty-five years of research on institutions, entrepreneurship, and economic growth: What has been learned? *Small Bus. Econ.* **2019**, *53*, 21–49. [\[CrossRef\]](#)
53. Acs, Z.J.; Estrin, S.; Mickiewicz, T.; Szerb, L. Entrepreneurship, institutional economics, and economic growth: An ecosystem perspective. *Small Bus. Econ.* **2018**, *51*, 501–514. [\[CrossRef\]](#)
54. Terán-Yépez, E.; Marín-Carrillo, G.M.; del Pilar Casado-Belmonte, M.; de las Mercedes Capobianco-Uriarte, M. Sustainable entrepreneurship: Review of its evolution and new trends. *J. Clean. Prod.* **2020**, *252*, 119742. [\[CrossRef\]](#)
55. Aparicio, S.; Urbano, D.; Audretsch, D. Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence. *Technol. Forecast. Soc. Chang.* **2016**, *102*, 45–61. [\[CrossRef\]](#)
56. Alwakid, W.; Aparicio, S.; Urbano, D. The influence of green entrepreneurship on sustainable development in Saudi Arabia: The role of formal institutions. *Int. J. Environ. Res. Public Health* **2021**, *18*, 5433. [\[CrossRef\]](#)
57. Russo, M.V.; Fouts, P.A. A resource-based perspective on corporate environmental performance and profitability. *Acad. Manag. J.* **1997**, *40*, 534–559. [\[CrossRef\]](#)
58. Sharma, S. Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Acad. Manag. J.* **2000**, *43*, 681–697. [\[CrossRef\]](#)
59. Schaltegger, S.; Lüdeke-Freund, F.; Hansen, E.G. Business models for sustainability: A co-evolutionary analysis of sustainable entrepreneurship, innovation, and transformation. *Org. Environ.* **2016**, *29*, 264–289. [\[CrossRef\]](#)
60. Lee, K.H.; Min, B. Green R&D for eco-innovation and its impact on carbon emissions and firm performance. *J. Clean. Prod.* **2015**, *108*, 534–542. [\[CrossRef\]](#)

61. Long, X.; Chen, Y.; Du, J.; Oh, K.; Han, I. Environmental innovation and its impact on economic and environmental performance: Evidence from Korean-owned firms in China. *Energy Policy* **2017**, *107*, 131–137. [\[CrossRef\]](#)
62. Li, L.; Msaad, H.; Sun, H.; Tan, M.X.; Lu, Y.; Lau, A.K. Green innovation and business sustainability: New evidence from energy intensive industry in China. *Int. J. Environ. Res. Public Health* **2020**, *17*, 7826. [\[CrossRef\]](#) [\[PubMed\]](#)
63. Abedinia, O.; Zareinejad, M.; Doranehgard, M.H.; Fathi, G.; Ghadimi, N. Optimal offering and bidding strategies of renewable energy based large consumer using a novel hybrid robust-stochastic approach. *J. Clean. Prod.* **2019**, *215*, 878e889. [\[CrossRef\]](#)
64. Khan, S.A.; Bohnsack, R. Influencing the disruptive potential of sustainable technologies through value proposition design: The case of vehicle-to-grid technology. *J. Clean. Prod.* **2020**, *254*, 120018. [\[CrossRef\]](#)
65. Trapp, C.T.; Kanbach, D.K. Green entrepreneurship and business models: Deriving green technology business model archetypes. *J. Clean. Prod.* **2021**, *297*, 126694. [\[CrossRef\]](#)
66. Widayastuti, T.; Parianom, R.; Permana, E. Green intellectual capital and sustainability performance companies in Indonesia. *Turk. J. Comput. Math. Educ. (TURCOMAT)* **2021**, *12*, 5555–5565.
67. Li, W.; Bhutto, M.Y.; Waris, I.; Hu, T. The nexus between environmental corporate social responsibility, green intellectual capital and green innovation towards business sustainability: An empirical analysis of Chinese automobile manufacturing firms. *Int. J. Environ. Res. Public Health* **2023**, *20*, 1851. [\[CrossRef\]](#) [\[PubMed\]](#)
68. Tien, N.H.; Anh, D.B.H.; Ngoc, N.M. Corporate financial performance due to sustainable development in Vietnam. *Corp. Soc. Responsib. Environ. Manag.* **2020**, *27*, 694–705. [\[CrossRef\]](#)
69. Agustia, D.; Sawarjuwono, T.; Dianawati, W. The mediating effect of environmental management accounting on green innovation: Firm value relationship. *Int. J. Energy Econ. Policy* **2019**, *9*, 299–306.
70. Ahmed, A.; Bhatti, S.H.; Gölgeci, I.; Arslan, A. Digital platform capability and organizational agility of emerging market manufacturing SMEs: The mediating role of intellectual capital and the moderating role of environmental dynamism. *Technol. Forecast. Soc. Chang.* **2022**, *177*, 121513. [\[CrossRef\]](#)
71. Deng, X.; Guo, X.; Wu, Y.J.; Chen, M. Perceived environmental dynamism promotes entrepreneurial team member's innovation: Explanations based on the uncertainty reduction theory. *Int. J. Environ. Res. Public Health* **2021**, *18*, 2033. [\[CrossRef\]](#)
72. Zulganeef, Z.; Pratminingsih, S.A.; Rianawati, A. Leveraging strategic intuition to reach firm performance: The role of entrepreneurial agility and environmental dynamism. *J. Siasat Bisnis* **2023**, *27*, 49–60. [\[CrossRef\]](#)
73. Mitchell, J.R.; Shepherd, D.A.; Sharfman, M.P. Erratic strategic decisions: When and why managers are inconsistent in strategic decision making. In *Decision Making in Entrepreneurship*; Edward Elgar Publishing: Gloucestershire, UK, 2016; pp. 266–287. ISBN 9781784716042. [\[CrossRef\]](#)
74. Zu'bi, M.F. Examining the impact of lean practices on flexibility performance: The moderating effect of environmental dynamism. *Eng. Manag. Res.* **2015**, *4*, 54. [\[CrossRef\]](#)
75. Dess, G.G.; Beard, D.W. Dimensions of organizational task environments. *Adm. Sci. Q.* **1984**, *29*, 52–73. [\[CrossRef\]](#)
76. Jansen, J.J.; Van Den Bosch, F.A.; Volberda, H.W. Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Manag. Sci.* **2006**, *52*, 1661–1674. [\[CrossRef\]](#)
77. Senyard, J.; Davidsson, P.; Steffens, P. Environmental dynamism as a moderator of the relationship between bricolage and firm performance. In *Annual Meeting of the Academy of Management*; Briarcliff Manor: New York, NY, USA, 2015; p. 1. [\[CrossRef\]](#)
78. Iyiola, K.; Rjoub, H. Using conflict management in improving owners and contractors relationship quality in the construction industry: The mediation role of trust. *Sage Open* **2020**, *10*, 2158244019898834. [\[CrossRef\]](#)
79. TOBB. Available online: <https://www.tobb.org.tr/TurkiyeTicaretSicilGazetesi/Sayfalar/Eng/AnaSayfa.php> (accessed on 15 March 2024).
80. Krejcie, R.V.; Morgan, D.W. Determining sample size for research activities. *Educ. Psychol. Meas.* **1970**, *30*, 607–610. [\[CrossRef\]](#)
81. Cochran, W.G. *Sampling Techniques*, 3rd ed.; John Wiley & Sons: Chichester, UK, 1977. [\[CrossRef\]](#)
82. Alvarez-Risco, A.; Mlodzianowska, S.; García-Ibarra, V.; Rosen, M.A.; Del-Aguila-Arcentales, S. Factors affecting green entrepreneurship intentions in business university students in COVID-19 pandemic times: Case of Ecuador. *Sustainability* **2021**, *13*, 6447. [\[CrossRef\]](#)
83. Wang, C.H.; Juo, W.J. An environmental policy of green intellectual capital: Green innovation strategy for performance sustainability. *Bus. Strategy Environ.* **2021**, *30*, 3241–3254. [\[CrossRef\]](#)
84. Azadegan, A.; Patel, P.C.; Zangouinezhad, A.; Linderman, K. The effect of environmental complexity and environmental dynamism on lean practices. *J. Operat. Manag.* **2013**, *31*, 193–212. [\[CrossRef\]](#)
85. Chan, W.; Zhang, Y.; Le, Q.; Jaitly, N. Latent sequence decompositions. *arXiv* **2016**, arXiv:1610.03035.
86. Li, Y.; Dai, J.; Cui, L. The impact of digital technologies on economic and environmental performance in the context of industry 4.0: A moderated mediation model. *Int. J. Prod. Econ.* **2020**, *229*, 107777. [\[CrossRef\]](#)
87. Yong, J.Y.; Yusliza, M.Y.; Ramayah, T.; Chiappetta Jabbour, C.J.; Sehnem, S.; Mani, V. Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Bus. Strategy Environ.* **2020**, *29*, 212–228. [\[CrossRef\]](#)
88. Podsakoff, P.M.; MacKenzie, S.B.; Podsakoff, N.P. Sources of method bias in social science research and recommendations on how to control it. *Ann. Rev. Psychol.* **2012**, *63*, 539–569. [\[CrossRef\]](#) [\[PubMed\]](#)
89. Simmering, M.J.; Fuller, C.M.; Richardson, H.A.; Ocal, Y.; Atinc, G.M. Marker variable choice, reporting, and interpretation in the detection of common method variance: A review and demonstration. *Org. Res. Methods* **2015**, *18*, 473–511. [\[CrossRef\]](#)

90. El Baz, J.; Ruel, S. Achieving social performance through digitalization and supply chain resilience in the COVID-19 disruption era: An empirical examination based on a stakeholder dynamic capabilities view. *Technol. Forecast. Soc. Chang.* **2024**, *201*, 123209. [\[CrossRef\]](#)
91. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879. [\[CrossRef\]](#)
92. Hairs, F., Jr.; Anderson, R.E.; Tatham, R.L.; WC, B. *Multivariate Data Analysis*; Macmillan: New York, NY, USA, 1988.
93. Hair, J.F.; Risher, J.J.; Sarstedt, M.; Ringle, C.M. When to use and how to report the results of PLS-SEM. *Eur. Bus. Rev.* **2019**, *31*, 2–24. [\[CrossRef\]](#)
94. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [\[CrossRef\]](#)
95. Henseler, J.; Dijkstra, T.K.; Sarstedt, M.; Ringle, C.M.; Diamantopoulos, A.; Straub, D.W.; Calantone, R.J. Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Org. Res. Methods* **2014**, *17*, 182–209. [\[CrossRef\]](#)
96. Bagozzi, R.P.; Yi, Y. On the evaluation of structural equation models. *J. Acad. Mark. Sci.* **1988**, *16*, 74–94. [\[CrossRef\]](#)
97. Iyiola, K.; Alzubi, A.; Dappa, K. The influence of learning orientation on entrepreneurial performance: The role of business model innovation and risk-taking propensity. *J. Open Innov. Technol. Mark. Complex.* **2023**, *9*, 100133. [\[CrossRef\]](#)
98. Abuzawida, S.S.; Alzubi, A.B.; Iyiola, K. Sustainable supply chain practices: An empirical investigation from the manufacturing industry. *Sustainability* **2023**, *15*, 14395. [\[CrossRef\]](#)
99. Hayes, A.F.; Scharkow, M. The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychol. Sci.* **2013**, *24*, 1918–1927. [\[CrossRef\]](#) [\[PubMed\]](#)
100. Aiken, L.S.; West, S.G. *Testing and Interpreting Interactions in Multiple Regression*; Sage Publications: California, CA, USA, 1991; ISBN 9780803936058.
101. Renko, M.; El Tarabishy, A.; Carsrud, A.L.; Brännback, M. Understanding and measuring entrepreneurial leadership style. *J. Small Bus. Manag.* **2015**, *53*, 54–74. [\[CrossRef\]](#)
102. Chandel, T.A. Green entrepreneurship and sustainable development. In *International Perspectives on Value Creation and Sustainability through Social Entrepreneurship*; IGI Global: Hershey, PA, USA, 2022; pp. 173–208. ISBN 9781668446669. [\[CrossRef\]](#)
103. Hu, X.; Khan, S.M.; Huang, S.; Abbas, J.; Matei, M.C.; Badulescu, D. Employees' green enterprise motivation and green creative process engagement and their impact on green creative performance. *Int. J. Environ. Res. Public Health* **2022**, *19*, 5983. [\[CrossRef\]](#) [\[PubMed\]](#)
104. Ha, S.T.; Lo, M.C.; Suaidi, M.K.; Mohamad, A.A.; Razak, Z.B. Knowledge Management process, entrepreneurial orientation, and performance in SMEs: Evidence from an emerging economy. *Sustainability* **2021**, *13*, 9791. [\[CrossRef\]](#)
105. Ortiz, E.; Marin, S.; Thompson, P. The role of small-and medium-sized practices in the sustainable transition of SMEs: Sustainable transition and professionals. *Environ. Dev. Sustain.* **2023**, 1–25. [\[CrossRef\]](#)
106. Khodaei, H.; Hajiali, M.; Darvishan, A.; Sepehr, M.; Ghadimi, N. Fuzzy-based heat and power hub models for cost-emission operation of an industrial consumer using compromise programming. *Appl. Therm. Eng.* **2018**, *137*, 395–405. [\[CrossRef\]](#)
107. De Sousa Jabbour, A.B.L.; Vazquez-Brust, D.; Jabbour, C.J.C.; Latan, H. Green supply chain practices and environmental performance in Brazil: Survey, case studies, and implications for B2B. *Indus. Mark. Manag.* **2017**, *66*, 13–28. [\[CrossRef\]](#)
108. Welter, F.; Smallbone, D. Institutional perspectives on entrepreneurial behavior in challenging environments. *J. Small Bus. Manag.* **2011**, *49*, 107–125. [\[CrossRef\]](#)
109. Boons, F.; Lüdeke-Freund, F. Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *J. Clean. Prod.* **2013**, *45*, 9–19. [\[CrossRef\]](#)
110. Zhu, Q.; Sarkis, J.; Lai, K.H. Confirmation of a measurement model for green supply chain management practices implementation. *Int. J. Prod. Econ.* **2008**, *111*, 261–273. [\[CrossRef\]](#)
111. Jiang, W.; Chai, H.; Shao, J.; Feng, T. Green entrepreneurial orientation for enhancing firm performance: A dynamic capability perspective. *J. Clean. Prod.* **2018**, *198*, 1311–1323. [\[CrossRef\]](#)
112. Lotfi, M.; Yousefi, A.; Jafari, S. The effect of emerging green market on green entrepreneurship and sustainable development in knowledge-based companies. *Sustainability* **2018**, *10*, 2308. [\[CrossRef\]](#)

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.